

AKPIK 4: Artificial Intelligence in Scientific Publishing (joint session AGI/AKjDPG/AKPIK)

Time: Wednesday 13:45–15:45

Location: KH 00.011

Invited Talk AKPIK 4.1 Wed 13:45 KH 00.011
Scientific publishing in the era of AI — ●DOMINIK ELSÄSSER — TU Dortmund, Department of Physics

The dissemination of results to colleagues and to the general public has been an indispensable part of the scientific process for as long as humankind has expanded our treasure of knowledge with scientific methods. The forms and the means by which this dissemination happens have however been subject to fundamental changes over time. One such change surely was that many fields of physics have moved towards working in large and international collaborations. And a more recent, yet profound change is the emergence of AI systems, which can be used to support many steps of the publication process, but also pose new challenges. In this talk, I will present key steps of the publication process typically encountered in fundamental physics and adjacent areas, and discuss options, methods, and tools available to the publishing scientist in the era of AI, with a specific focus on modern Large Language Models (LLMs), and on systems based on LLMs. While a focus will be on publication in peer-reviewed journals, there will also be a discussion of other forms of publication.

Invited Talk AKPIK 4.2 Wed 14:15 KH 00.011
Intelligence and the Art of Scientific Publishing - an Editor's Perspective — ●ANDREAS BUCHLEITNER — Physikalisches Institut, Albert-Ludwigs-Universität Freiburg

Artificial intelligence (AI) shatters fundamental rules of the scientific publishing process. It induces a certain level of perplexity and disorientation within the academic realm, on how to react and/or to adapt - at a speed which is dictated from the outside, by a rapidly developing technology, together with the economic traction which comes with it. Different stakeholders of the publication process suggest distinct remedies, certainly guided by their respective perspectives, levels of expertise, and interests. And, clearly, there are highly nonlinear interdependencies between the thus reorganizing publication process, standards of good scientific practice, and the - in many respects highly

disputable - incentives which constrain science and, in particular, academic careers. After stating some of the immediate challenges AI poses to the inner workings of the editorial process, the talk will expand upon the above interdependencies, and contemplate the genuine role and responsibility of the scientific community in shaping them.

Invited Talk AKPIK 4.3 Wed 14:35 KH 00.011
Prompt or perish - the research life cycle in times of genAI — ●SANDRA GEISLER — RWTH Aachen University, Aachen, Deutschland

Large Language Models (LLMs) are rapidly reshaping how research is conducted and communicated. In this talk we will explore and spark discussions about where generative AI could or already does add value along the research life cycle, as well as the limitations and risks that must be carefully considered. From brainstorming and literature discovery to FAIR-compliant research data management, science communication and the review process, LLMs offer powerful new opportunities for researchers. At the same time, researchers face significant uncertainty, ethical concerns, and policy gaps. Drawing on recent studies and practical examples from our own research projects, this presentation highlights both the promise and the perils of an AI-assisted research life cycle.

Discussion AKPIK 4.4 Wed 15:05 KH 00.011

Discussion — ANDREAS BUCHLEITNER¹, DOMINIK ELSÄSSER², SANDRA GEISLER³, ●UWE KAHLERT³, SIMON NEUHAUS⁴, and ●TIM RUHE² — ¹Physikalisches Institut, Albert-Ludwigs-Universität Freiburg — ²TU Dortmund, Department of Physics — ³RWTH Aachen University — ⁴Bergische Universität Wuppertal

Scientific publishing has long been said to be in crisis. "Publish or perish" is too often the prevailing motto. AI tools can now be used at almost every stage of the process. What risks and perhaps also opportunities does this development present? We will discuss this with the speakers of this session.